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## Dwyer 477AV-2

# Dwyer 477AV-2 Handheld Digital Manometer Instruction Manual

Model: 477AV-2 | Brand: Dwyer

## 1. PRODUCT OVERVIEW

The Dwyer Series 477AV Handheld Digital Manometer is an advanced instrument designed for precise pressure, flow, and velocity measurements. It features a highly accurate differential pressure sensor, offering  $\pm 0.5\%$  full scale accuracy. The device displays negative, positive, and differential pressure, with selectable English and metric units. Its built-in air velocity and flow calculations streamline operations, eliminating the need for manual computations.

The manometer can store up to 40 readings, making it ideal for HVAC technicians performing Pitot tube traverses for airflow analysis. Critical for maintenance personnel and technicians, the 477AV series ensures accurate performance checks of instrumentation and equipment. The digital display includes a backlight for visibility in low-light conditions, and battery conservation is managed with a low battery voltage display and an automatic shut-off feature after 20 minutes (adjustable or disable-able). Field calibration for zero and span values is supported, and a damping feature stabilizes fluctuating readings. An audible and visual alarm system warns of overflow, overpressure, or over-velocity conditions. The back of the aluminum casing features a menu structure outline for quick reference. The package includes comprehensive written instructions, a wrist strap, and a 9 Volt alkaline battery.

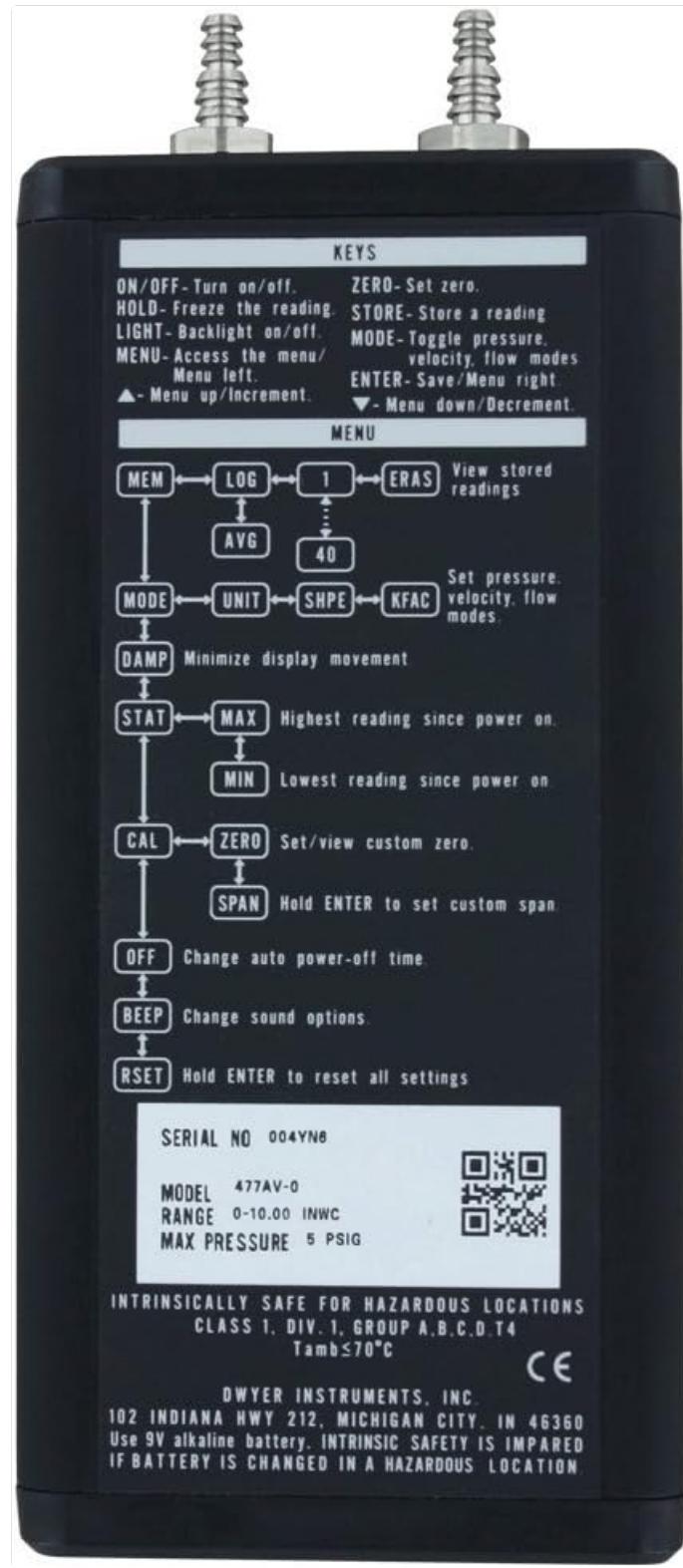


Figure 1: Front view of the Dwyer 477AV-2 Handheld Digital Manometer, showing the display and control buttons.

## 2. SETUP

### 2.1 Battery Installation

The Dwyer 477AV-2 requires a 9V alkaline battery for operation. The battery compartment is typically located on the back of the unit. Ensure the battery is installed correctly, observing polarity. The device is designed for user-replaceable batteries.

### 2.2 Connecting Hoses and Probes

Connect the provided hoses to the pressure ports on the top of the manometer. For static pressure measurements,

attach the static pressure probes to the ends of the hoses. For gas pressure measurements, use the appropriate gas pressure fittings. Ensure all connections are secure to prevent leaks and ensure accurate readings.



Figure 2: Side view of the Dwyer 477AV-2, highlighting the pressure ports for hose connections.

### 2.3 Power On and Zeroing

1. Press and hold the ON/OFF button to power on the device.
2. Before taking any measurements, ensure the manometer is exposed to ambient air (no pressure applied to the ports).
3. Press the ZERO button to zero out the meter. This calibrates the device to the current atmospheric pressure, ensuring accurate differential readings.

## 3. OPERATING INSTRUCTIONS

### 3.1 Pressure Measurement

1. Connect the hoses to the desired pressure points in the system.
2. The display will show the pressure reading. Use the UNIT button to cycle through available pressure units (e.g., inWC, psi, kPa).
3. For differential pressure, connect hoses to two different points (P1 and P2). The device will automatically calculate and display the differential pressure.
4. Press the HOLD button to freeze the current reading on the display. Press again to release.

### 3.2 Air Velocity and Flow Measurement

When using a Pitot tube, connect it to the manometer. The 477AV-2 can perform built-in air velocity and flow calculations. Refer to the menu structure outline on the back of the casing for specific steps to enter flow and velocity modes and input necessary parameters.



**Figure 3:** Back view of the Dwyer 477AV-2, showing the printed menu structure outline for quick operational reference.

### 3.3 Data Logging and Alarms

- The manometer can save up to 40 readings. Use the menu options to access and store readings.
- The device features an audible and visual alarm for over-flow, over-pressure, or over-velocity conditions. Pay attention to these warnings during operation.

### 3.4 App Integration (General Manometer Use)

While the Dwyer 477AV-2 is a standalone unit, many modern manometers offer app integration for enhanced data logging and reporting. The following videos demonstrate general manometer usage and app integration concepts that may be applicable to similar devices or future Dwyer models with connectivity features. These videos are provided by sellers and illustrate common practices in the field.

## Job Link Kit - Dual Manometer by Fieldpiece

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This video demonstrates the features and use of a dual-port manometer kit, including its components, wireless range, magnetic attachment, and integration with a mobile application for live measurements and reporting. It highlights the benefits of using two single-port manometers for flexibility in connecting to equipment and managing tubing.

## Manometer Gas Pressure Tester

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This video provides a brief overview of a digital manometer used for gas pressure testing. It showcases the device's display, buttons, and general appearance, demonstrating its application in various industrial and HVAC settings for pressure measurement.

## Klein Tools Digital Differential Manometer

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This video introduces the Klein Tools ET180 Digital Differential Manometer, highlighting its features such as static and differential pressure measurement, multiple unit options, backlit display, magnetic back for hands-free operation, and auto-off feature. It also shows the included accessories like silicone tubing and carrying case.

## 4. MAINTENANCE

### 4.1 Battery Replacement

When the low battery indicator appears on the display, replace the 9V alkaline battery. Ensure the device is powered off before opening the battery compartment. Replace with a fresh 9V alkaline battery, observing correct polarity. If the device is used in a hazardous location, ensure the battery is changed in a non-hazardous location to maintain intrinsic safety.

### 4.2 Cleaning

Clean the exterior of the manometer with a soft, damp cloth. Do not use abrasive cleaners or solvents. Keep the pressure ports free from dust and debris. Periodically inspect hoses and probes for wear or damage and replace as necessary.

### 4.3 Field Calibration

The Series 477AV can be field-calibrated by setting zero and span values. Refer to the detailed instructions in the included manual or the menu structure outline on the back of the device for the precise procedure.

## 5. TROUBLESHOOTING

- **Inaccurate Readings:**

- Ensure the device was zeroed correctly before measurement.
- Check for leaks in hose connections or damaged hoses/probes.
- Verify that the correct unit of measurement is selected.
- If readings are fluctuating excessively, activate the damping feature via the menu.

- **Device Not Powering On:**

- Check battery level; replace if low.
- Ensure the battery is installed with correct polarity.

- **Alarms Triggering Unexpectedly:**

- Review the system's expected pressure/flow/velocity ranges.
- Ensure the manometer's alarm thresholds are set appropriately (if adjustable).

## 6. SPECIFICATIONS

<b>Brand</b>	Dwyer
<b>Model Number</b>	477AV-2
<b>Pressure Limits</b>	10 psig
<b>Temperature Limits</b>	0 to 140°F (-17.8 to 60°C)
<b>Compensated Temperature Limits</b>	32 to 104°F (0 to 40°C)
<b>Storage Temperature Limits</b>	-4 to 176°F (-20 to 80°C)
<b>Display</b>	0.42" (10.6 mm) 4 digit LCD
<b>Accuracy</b>	±0.5% full scale
<b>Power Requirements</b>	9 V Alkaline battery (user replaceable)
<b>Item Weight</b>	10.2 ounces
<b>Product Dimensions (LxWxH)</b>	11 x 7 x 2.1 inches

## 7. WARRANTY AND SUPPORT

For warranty information, technical support, or service inquiries, please refer to the comprehensive written instructions included with your Dwyer 477AV-2 Handheld Digital Manometer or visit the official Dwyer Instruments, Inc. website. Keep your purchase receipt for warranty validation.